MANUAL OF BEST MANAGEMENT PRACTICES (BMPS) FOR AGRICULTURE IN NEW HAMPSHIRE

Best Management Practices for the Handling of Agricultural Compost, Fertilizer, and Manure

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MANUAL OF BEST MANAGEMENT PRACTICES (BMPS) FOR AGRICULTURE IN NEW HAMPSHIRE

Reprinted
April 2002

Discussion of Nutrient Best Management Practices For Agricultural Nonpoint Source Pollution

Prepared Originally by the
Agricultural Best Management Practices Task Force
and the
USDA Natural Resources Conservation Service (NRCS), Durham, NH
for the
New Hampshire Department of Agriculture, Markets, and Food
Concord, NH

FORWARD

This manual is a cooperative effort by several of New Hampshire's conservation partners. It presents guidance to landowners, town officials, state agencies, and others to help maintain the state's agricultural base and protect water quality. It discusses handling of manure, agricultural compost and chemical fertilizer. Handling is addressed in relation to farm operations, natural resource conservation, water quality, and human, animal and plant health. Nonpoint source pollution and resolution of agricultural environmental and social complaints are also discussed.

Agriculture is an important business in New Hampshire, producing food and fiber for local and regional use. Its importance is reflected in RSA 432:32-35 which limits nuisance liability of agricultural operations. It also provides secondary benefits to citizens and visitors alike. Open space, vistas, and recreation opportunities are available in greater numbers due to farming.

New Hampshire is also fortunate to have some of the best quality lakes and rivers in the United States. While New Hampshire's surface waters are important for recreation, both surface water and ground water are utilized for domestic water supplies. New Hampshire's economy, including farming, is dependent upon a healthy environment. Protecting this state's water resources is a major concern. The use of Best Management Practices for agriculture is an avenue to protect the quality of our lakes, streams, ground water and rivers for future generations.

Recognizing that the shorelands of the state are among its most valuable natural resources, and that the protection of these shorelands is essential to maintain the integrity of public waters, the New Hampshire General Court passed the Comprehensive Shoreland Protection Act (RSA 483-B) in 1991. Even though agricultural activities and operations are exempt from RSA 483-B, they must conform to best management practices determined by the USDA Natural Resources Conservation Service, the UNH Cooperative Extension and the New Hampshire Department of Agriculture. Persons engaging in these activities and operations in the protected shoreland shall work directly with the local representatives of the above agencies. The protected shoreland is all land within 250 feet of the public boundary line of public waters, as defined by the Act.

This Manual discusses and lists Best Management Practices for manure, agricultural compost and chemical fertilizer. As indicated in RSA 431:33-35, the practices for handling manure, agricultural compost and chemical fertilizer "…are based on the best available research and scientific data…" They are management, agronomic/vegetative and structural practices that permit economically viable production while achieving the least possible adverse impact upon the environment, including water quality. They also minimize possible adverse impacts on human, animal and plant health.

Stephen H. Taylor
Commissioner
NH Department of Agriculture

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It was developed for the New Hampshire Department of Agriculture by the Agricultural Best Management Practices Task Force and the USDA Natural Resources Conservation Service, Durham, NH. Gerald J. Lang was Project Manager. The manual was edited and designed by Ray Wenninger.

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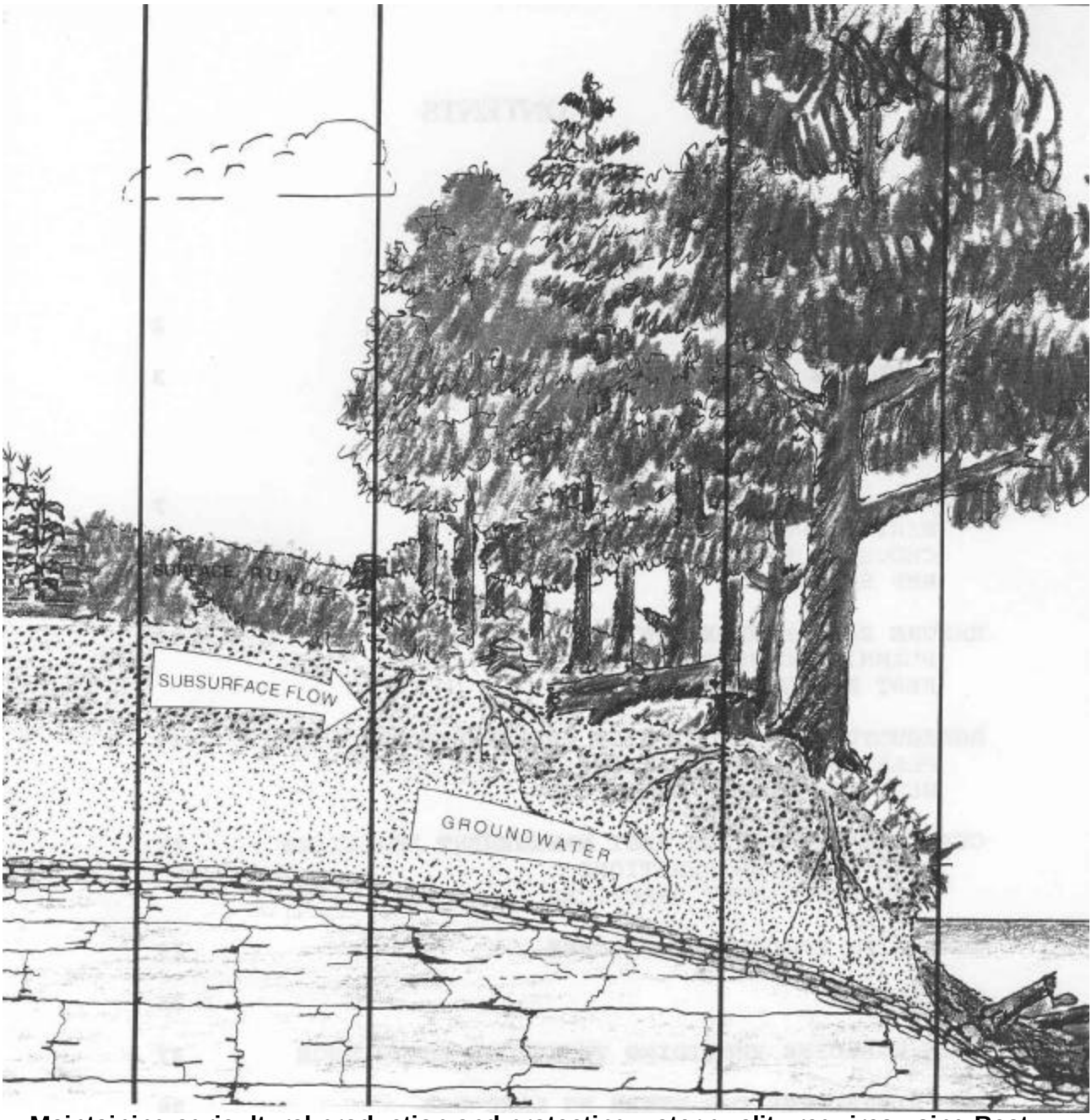
TABLE OF CONTENTS



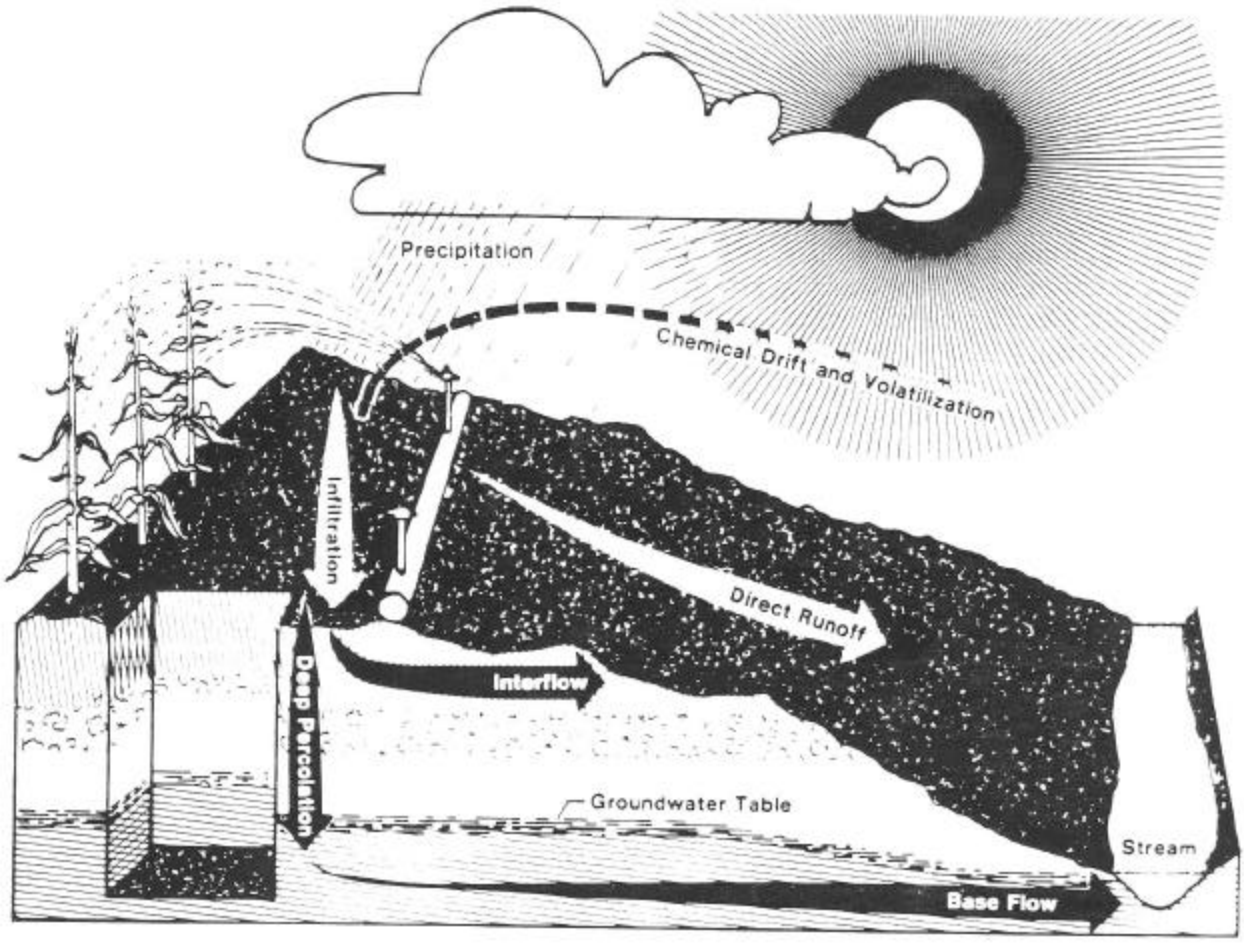
Maintaining agricultural production and protecting water quality requires using Best Management Practices.

INTRODUCTION

The land resource and farmers who use it represent the foundation of our Nation. Farming produces food, fiber, and other products for sustaining the state and country. In New Hampshire, about 2500 commercial and many part-time and hobby farms produce food and fiber for local and regional markets. This farming can continue to be viable within the conservation needs of the farm, surrounding area and watershed. Continuous protection of the state's environmental quality can be assured by using Best Management Practices (BMPs). These agricultural BMPs are management, agronomic/vegetative and structural practices that permit economical and viable production while achieving the least possible adverse impact on the environment, including water quality. They also minimize possible adverse impacts on human, animal and plant health.

Best Management Practices prevent pollution from agricultural operations. Plant nutrients, bacteria, sediment and agricultural chemicals can be controlled so that pollution of surface and ground water does not occur and limit the use for drinking, aquatic life and recreation. Odor, vectors, and other nuisances can also be minimized by adequate BMP's.

This manual discusses water quality, nonpoint source pollution and the selection and use of BMPs for manure, agricultural compost, and chemical fertilizer. It provides lists of more common BMPs for preliminary consideration. The information sources in the reference section provide some guidance in selecting, planning, designing and implementing Best Management Practices. Professional judgment is required to properly select BMPs for a particular farm or site. It is not intended that all BMPs necessarily be applied to a particular situation. The manual also discusses agricultural water, air and nuisance complaints and positive steps to resolve them. Information is included on RSA 431:33-35, "Manure, Agricultural Compost, and Chemical Fertilizer Handling," and the complaint process.



Pollution can result if precipitation or runoff detaches agricultural materials and transports them to surface water bodies.

AGRICULTURE AND THE ENVIRONMENT

Water Quality

The value of water lies in its usefulness for a wide variety of purposes, and the quality determines its acceptability for use. Quality is impacted when water is contaminated to a level where it is no longer acceptable for a particular use. Pollution, which limits the usefulness of receiving waters, has a significant effect on the environment. Therefore, maintaining or improving the quality of ground and surface water is important.

Potential ground water contaminants from agricultural operations include nutrients, generally nitrogen, agricultural chemicals, and bacteria. Potential surface water contaminants include agricultural chemicals attached to sediment, organic matter, bacteria, nutrients, including phosphorus, and sediment.

Under natural conditions, ground water tends to maintain a relatively constant quality over time. Soil filtration removes turbidity, color, and micro-organisms, depending on the soil and its chemical characteristics. Some chemicals are adsorbed depending on soil type. Because ground water is available throughout the state, it is often used for domestic supply. Ground water is also desirable because water recharging an aquifer has the potential to be purified naturally as it percolates though the soil. However, aquifers overlain by porous materials, such as sand and gravel, allow pollutants to move into the ground water.

Also in New Hampshire, about 40 percent of surface water is used for domestic purposes and there is concern for its quality.

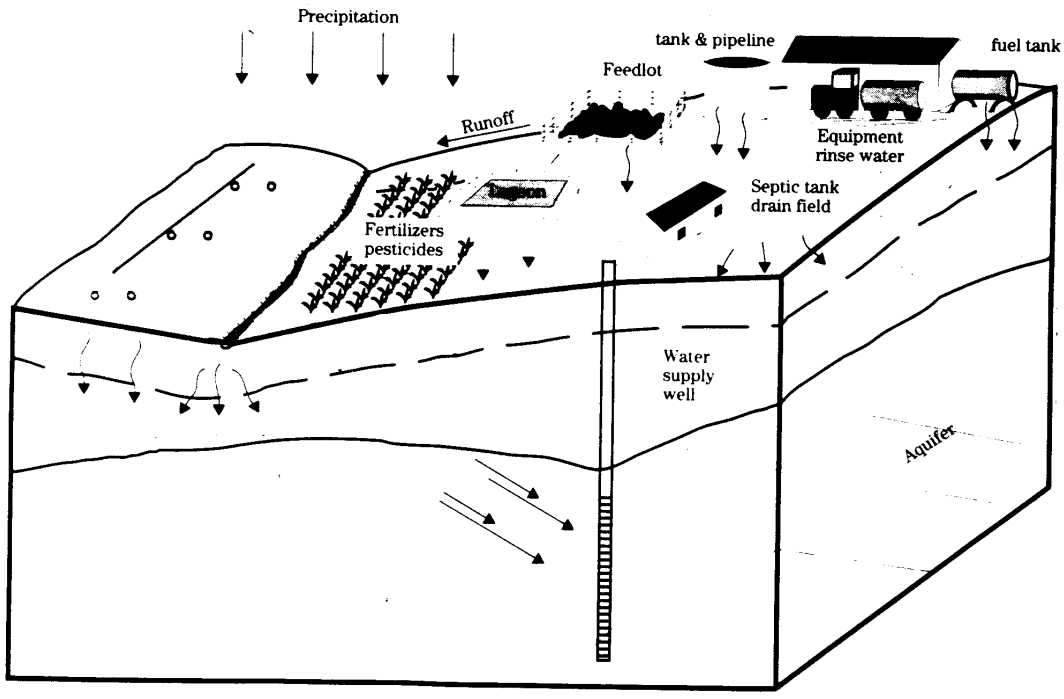
Water quality regulations relate to the physical and chemical properties of water as well as toxic levels of natural and manufactured substances. Potable water has the most stringent quality requirements. Failure of domestic supplies to meet standards for even short periods of time can result in serious illness. Water quality standards also address aquatic life and recreation concerns.

Farms require a domestic water supply in addition to water used for a variety of other purposes. Livestock farmers are especially concerned with water quality for health and product quality. Farmers must be particularly careful that farm water supplies do not become contaminated.

Nonpoint Source Pollution

Improper or inadequate agricultural management activities can pollute surface and ground water resources. Potential agricultural pollution includes point and nonpoint source pollutants. Point source pollutants are discrete sources or where the specific point of entry of the pollutant is readily identified, such as a spill. Nonpoint source pollutants are diffuse in manner, with no definite point of entry and the source may not be readily discernible. In contrast to point sources, nonpoint sources generally result from precipitation, land runoff, or percolation. The impact to receiving waters is usually directly dependent on precipitation.

Nonpoint pollution sources are the most common for agriculture and are the ones discussed in this manual. Nonpoint pollution may be generated over a large area, such as a feedlot or field. These pollution sources cannot be easily treated with point-type treatment facilities. Therefore, agricultural nonpoint source pollution problems are solved by managing the potential sources and application sites.



Examples of nonpoint source pollution that can be controlled with Best Management Practices.

Potential agricultural nonpoint source pollutants include nutrients, agricultural chemicals, organic wastes, and bacteria. Manure, agricultural compost, and chemical fertilizer are spread over field and crops as part of normal farming operations. Other potential pollutants such as petroleum may result from farming operations. Pollution can result if precipitation or runoff water detaches soil and other materials and transports them to surface water bodies or leaches them into ground water.

Several nonpoint sources may contribute to an accumulation of pollutants at the lower end of a watershed. Planning on a watershed scale may be necessary for these situations when determining practices necessary to solve water quality problems.

Best Management Practices such as "filter strips" or buffers next to surface waters help protect water quality.

Other Impacts

Inadequate agricultural practices may have adverse impacts on air resources and social conditions in the community. For example, farming viewed by a neighbor who has a similar enterprise as compared to one who works in the city could be completely different. Appropriate practices will minimize social effects on the community. Emissions of ammonia and other gases from farming operations including livestock operations may degrade air quality if care is not taken. Odors, from confined livestock, waste storage areas, lagoons, and field application of wastes may be minimized to prevent offending the neighbors. Any hazards from disease and parasites, insects and other vectors may be controlled with adequate practices to prevent concern.

Economics are also necessary for planning and evaluating practices. Evaluation of costs and benefits is necessary to maintain agricultural viability and protect the environment.

BEST MANAGEMENT PRACTICES

Minimizing Impacts

Implementing Best Management Practices (BMPs) can minimize the potential for agricultural nonpoint source water pollution and other adverse environmental and social problems. BMPs are practices based on the best available research and scientific data. They permit efficient farming operations while achieving the least possible adverse impact upon the environment or human, animal and plant health. Selection, design and implementation of appropriate BMPs require evaluation of resources involved, and the potential impacts on them. BMPs also require evaluation of the needs for sustainable agriculture, farm operations and markets and existing practices.

Approaches to farming that seek to minimize use of agricultural chemicals and fertilizers without sacrificing economic viability are strongly recommended. These approaches are known as “Sustainable Agriculture,” and “Integrated Farm Management.” The goals of the various systems are to minimize chemical input and maintain environmental quality and agricultural productivity.

It is usually possible to select, combine, design and implement BMPs to protect surface and ground water and accommodate other environmental, social and economic concerns. The effects of practices on both ground and surface water quality must be considered when solving agricultural nonpoint source problems.

Infiltration of surface water may increase the potential for leaching of nutrients and chemicals into ground water.

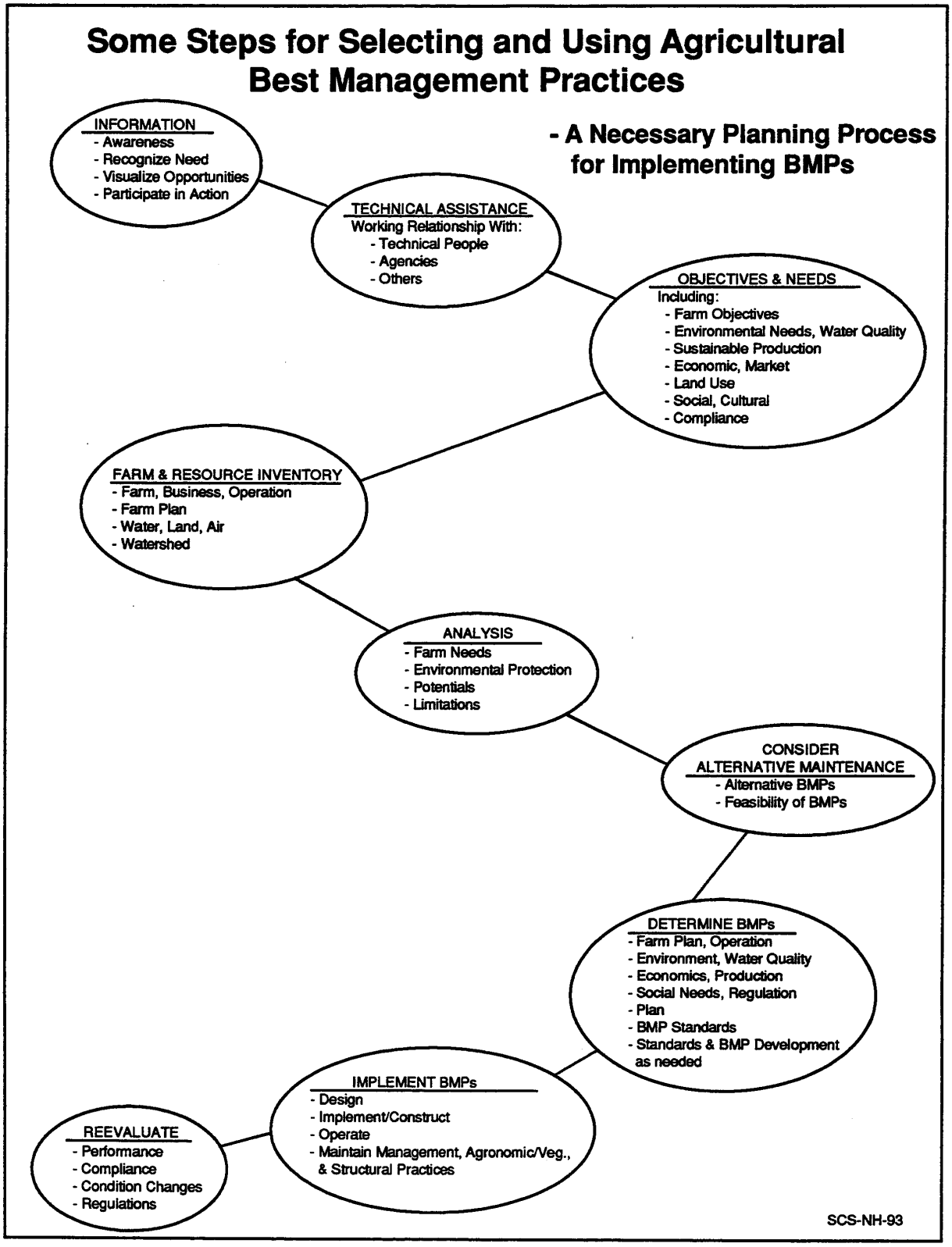
Choosing Best Management Practices

BMPs are listed by groups for manure, agricultural compost, and chemical fertilizer in the following sections. These groups aid in preliminary consideration of appropriate BMPs for a particular farm, field, or site. Because of the diversity in farming, only the more common BMPs are listed. The type of farming and farming practices, layout, business objectives and site conditions may require that other BMPs be developed and/or used for specific applications.

Selected BMPs should fit the operation of the entire farm and the environmental situation. The selected practices together are part of a farm plan for a particular agricultural operation. Resource professionals should select BMPs as needed and develop farm plans. Professional judgment is required to choose and implement BMPs for specific situations. The manual should not be used as a "cookbook" method to replace professional judgment. Some steps for selecting and using agricultural Best Management Practices are shown on Page 11.

BMP Standards

In some cases, BMPs may require standards to further define and implement them. These standards can include planning consideration guidelines and technical criteria that more specifically define what is to be done or constructed. Resource/design professionals may be needed to help choose the correct standards. A partial example of an NRCS standard for "Filter Strip" is shown on Page 8 (Note: references on the standard to SCS predate the name change to NRCS).


Some Steps for Selecting and Using Agricultural Best Management Practices
- A Necessary Planning Process for Implementing BMPs
INFORMATION
- Awareness
- Recognize Need
- Visualize Opportunities
- Participate in Action
TECHNICAL ASSISTANCE
Working Relationship With:
- Technical People
- Agencies
- Others
OBJECTIVES & NEEDS
Including:
- Farm Objectives
- Environmental Needs, Water Quality
- Sustainable Production
- Economic, Market
- Land Use
- Social, Cultural
- Compliance
FARM & RESOURCE INVENTORY
- Farm, Business, Operation
- Farm Plan
- Water, Land, Air
- Watershed
ANALYSIS
- Farm Needs
- Environmental Protection
- Potentials
- Limitations
CONSIDER ALTERNATIVE MAINTENANCE
- Alternative BMPs
- Feasibility of BMPs
DETERMINE BMPs
- Farm Plan, Operation
- Environment, Water Quality
- Economics, Production
- Social Needs, Regulation
- Plan
- BMP Standards
- Standards & BMP Development as needed
IMPLEMENT BMPs
- Design
- Implement/Construct
- Operate
- Maintain Management, Agronomic/Veg., & Structural Practices
REEVALUATE
- Performance
- Compliance
- Condition Changes
- Regulations
SCS-NH-93

A PARTIAL EXAMPLE OF AN SCS STANDARD

This is an abbreviated excerpt from the SCS "New HampshireTechnical Guide Handbook."
In some cases, BMPs require standards to further define and implement them.
SCS standards are not intended for use by the layperson.

SCS STANDARD FOR FILTER STRIP (ACRE) (CODE 393)

Definition

A strip or area of vegetation for removing sediment, organic matter, and other pollutants from runoff and wastewater.

Purpose

This standard establishes the minimally acceptable requirements for design and operation and maintenance of filter strips for removing sediment, organic matter, and other pollutants from runoff or wastewater. It does not apply to field borders (386).

Planning Considerations

Evaluate type and quantity of pollutant, slopes and soils, adapted vegetative species, time of year for proper establishment of vegetation, necessity for irrigation, visual aspects, fire hazards, and other special needs. Prevent erosion where filters outlet into streams or channels.

If filter strips are being used in treating wastewater or polluted runoff from concentrated livestock areas, the following must be considered:

1. Adequate soil drainage to ensure satisfactory performance. Vegetative species adaptable to wet soil conditions.
2. Provisions for preventing continuous or daily discharge of liquid waste unless the area is adequate for infiltrating all daily applied effluent. Temporary storage shall be considered.

Design Criteria

Filter strips for runoff from concentrated livestock. These criteria apply to filter strips for feedlot and barnyard runoff.

A low velocity channel shall be a minimum of 75 ft. long. It shall be designed for a flow depth of 0.5 ft. or less to pass the peak flow resulting from a 2-year, 24-hour rainfall at a velocity of 0.5 ft. per second

Plans and Specifications

Plans and specifications for filter strips shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

Vegetative Specifications Guide

Specify methods of seedbed preparation; adapted plants; planting dates and rates of seeding or sprigging; need for mulching, use of a stabilizing crop, or mechanical means of stabilizing; and fertilizer, soil amendment, and weed control requirements. Specify requirements for maintenance.

MANURE BEST MANAGEMENT PRACTICES

This group of Best Management Practices (BMPs) provides guidance for managing manure effectively, including storage, handling and utilization for forage and crop production. They give guidance in minimizing potential for surface and ground water degradation from manure use.

These BMPs are intended to permit the maximum use of nutrients and soil conditioning while achieving minimal impact upon the environment and human, animal, and plant health.

Planning Considerations

These BMPs address techniques that produce optimum forage and crop yields while limiting movement of pollutants into water bodies and ground water. Manure provides nutrients needed for plant growth. The application of manure has a beneficial influence on soil condition by improving tilth, decreasing crusting, increasing organic matter and increasing infiltration. Manure-related pollutants include nitrogen, phosphorus, pathogens, and material that has a high biochemical oxygen demand. The following steps should be taken to make maximum use of nutrients from manure:

- Obtain technical assistance from appropriate agencies to select, design, and construct or otherwise implement adequate Manure Best Management Practices. Refer to the "Some Agencies Providing Technical Assistance" section on Page 38.

- Store manure in a way compatible with the type of farming operation to enhance nutrient utilization.

- Determine crop production desired based on realistic yield goals.

- Plan to apply manure uniformly over the maximum number of acres to avoid nutrient overload.

- Keep the protection and preservation of surface and ground water in mind when performing farming operations.

- Several or all of the following BMPs may be necessary to achieve the desired results. Local conditions may dictate that other BMPs be used as available.

Best Management Practices

1. Control access of livestock to water bodies.

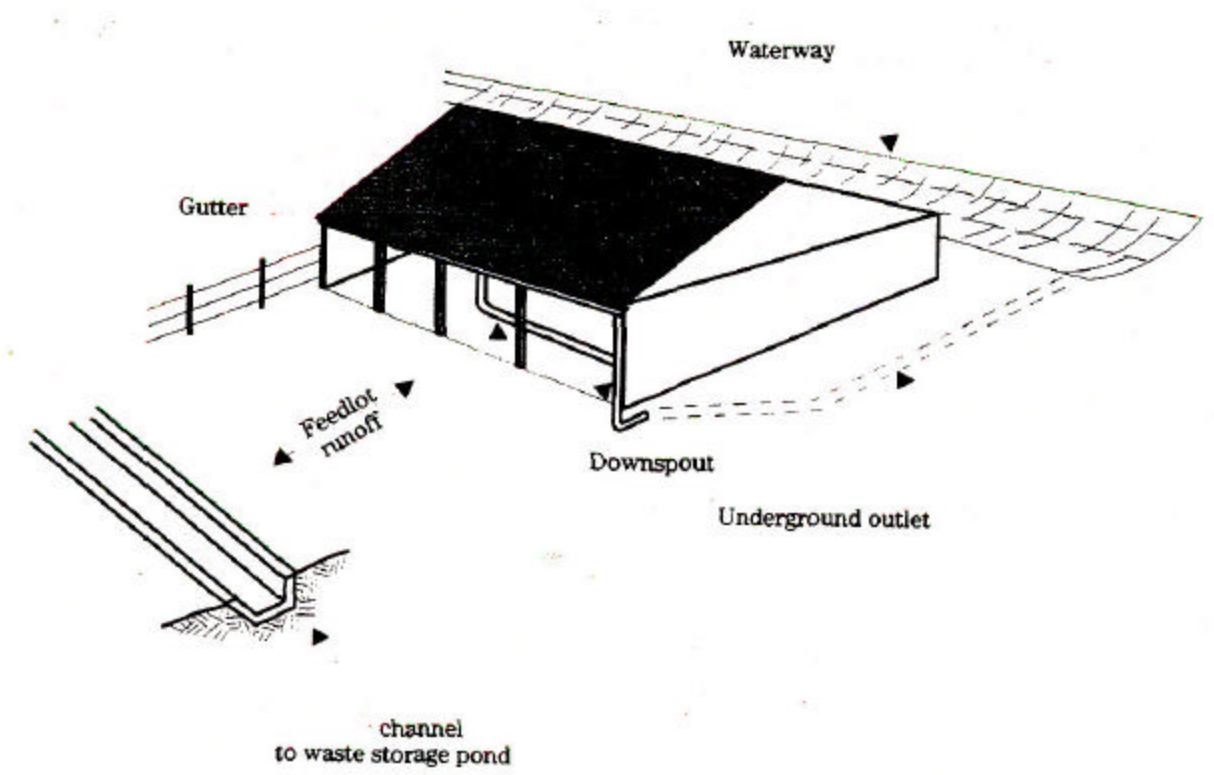
Minimize the direct deposition of manure by controlling access of livestock to water bodies.

2. Control runoff from barnyards and feedlot.

Divert clean runoff to reduce the amount of water that runs through these areas. Control the manure-related pollutants that run off barnyards and feedlots with filter strips, grass areas below the barnyards and feedlots, and/or settling basins.

3. Divert roof runoff away from barnyards and feedlots.

Divert roof water to minimize the volume of runoff containing nutrients.



A Best Management Practice such as "divert roof runoff away from barnyards and feedlots" minimizes the volume of runoff containing nutrients.

4. Manage barnyards and feedlots to minimize concentrations of manure.

Timely cleaning and removal of manure will reduce buildup, retain nutrients and prevent runoff.

5. Manage pastures to reduce concentrations of manure.

Careful placement of livestock watering facilities and her management areas and paddock layout can reduce concentrations of manure and associated impact on water bodies.

6. Where practical, compost manure to reduce the volume of material requiring land application.

Composting converts nutrients into organic forms that are more slowly available to plants when incorporated into the soil. Leaching potential of nutrients is reduced when using compost. Composted material has little or no odor and is suitable for use as a soil amendment in residential areas. The soil structure and fertility of lawns and gardens are improved by the use of compost. Employ Agricultural Compost BMPs.

7. Store manure in properly constructed facilities or field stack during periods when land application is not suitable.

During periods when suitable sites for land application of manure are not available, the use of properly located and constructed manure storage facilities is recommended. These will provide storage until conditions permit land applications and incorporation. Field stacking is a storage alternative which requires a higher level of management than daily spreading. An intense period of labor is required to spread the stacked or stored manure. Field stacking is acceptable on flat spots away from surface water, with no direct drainage to the water. Potential nutrient pollution of ground and surface water from improper storage or daily spreading of manure will be reduced.

8. Reduce or eliminate the use of manure in some areas.

Chemical fertilizer may be substituted for manure in some areas as a way of reducing bacterial contamination. Chemical fertilizers can be tailored to provide only those nutrients which are required by the crop. However, some nutrients from chemical fertilizers are also readily leached through the soil.

9. Maintain a balance between the number of livestock and acres of agricultural land available for spreading manure.

10. Utilize soil tests to determine background levels of nutrients and soil pH.

Amount of available nutrients in the soil reduces the need for applying extra nutrients for crop production. Over application of nutrients causes potential

leaching into ground water and added expense for crop production. Proper soil pH allows better utilization of soil nutrients.

11. Base nutrient application rates on realistic yield goals.

Use crop yield and soil potential information from published county soil survey reports until yield experience information is accumulated. Only realistic goals based on recent yield experience or published soil potential information will allow accurate determination of optimum nitrogen and phosphorus application rates for crop production. Yield goal estimates should be cautiously optimistic, but not more than 10 to 20 percent above the recent average yield experienced in a particular field. It is strongly recommended that growers develop or maintain accurate recording systems for crop yield.

12. Consider nutrient contributions from legumes, other organic sources and chemical fertilizers when determining manure application rates.

13. Employ cultural practices in a timely fashion to ensure that crop yields are not depressed.

Depressed crop yields will inhibit plant fertilizer uptake. Remaining nitrogen can be leached to ground water and surface waters. Remaining phosphorus can be moved to surface waters. Proper timing of cultivation, planting, pest control, and supplemental fertilization is needed to achieve maximum crop yields.

14. Calibrate manure application equipment properly to guard against over fertilization and to achieve maximum benefit from the manure over the greatest amount of farmland.

Nutrient credits measured through manure or soil testing assume uniform and proper application. Non-uniform applications of manure result in improper nutrient crediting and shortage of manure for application on part of the farmland. This can increase the possibility of over-fertilization, which threatens ground and surface water quality.

15. Keep accurate fertilizer and manure application records and crop yield records to help determine proper manure and fertilizer rates.

Applying proper rates of manure and fertilizer can minimize risk of manure and fertilizer related pollutants to ground and surface waters. Using worksheets and keeping long-term records help predict realistic crop yield goals to plan nutrient application rates.

16. Incorporate manure applications where and when appropriate, as soon as possible after application.

This practice can reduce bacteria, organic matter and nutrient contributions from manure applications to runoff water. This, in turn limits their contribution to

surface water bodies. Incorporation also eliminates odor problems. More nutrients are available for plant growth than from manure applied and left on the ground surface.

17. Avoid the application of manure on frozen ground or snow-covered fields.

Manure applications on frozen ground or snow-covered fields usually increase the amount of manure-related pollutants that reach surface water bodies.

18. Avoid applying manure directly on exposed bedrock and reduce application rates on shallow soils.

Manure should not be applied directly to exposed bedrock. Most bedrock is fractured and those fractures provide excellent pathways for nutrient migration to ground water sources. Additionally, manure application rates should be reduced on shallow soils to reflect the reduced ability to retain nutrients for plant uptake.

19. Minimize soil erosion.

Soil erosion facilitates mechanical transport of nutrients, pathogens, and organic matter to surface water bodies.

20. Diversify crop rotations to include crops that can utilize residual nitrogen where appropriate.

In sensitive areas, where nitrogen leaching may be a problem, rotating crops to include legumes or other crops, which do not require supplemental applications of nitrogen, can influence the movement of this nutrient through the soil. These crops can effectively utilize or "scavenge" any remaining nutrients left over from the previous crop or which have been mineralized from decomposing organic matter.

21. Plant cover crops on fields after harvesting annual crops, when possible.

This practice can be used in those situations where a crop is harvested early enough in the growing season to establish a cover crop. By doing this, nutrients not utilized by the primary crop can be tied up and not subject to leaching. In addition, wind and water erosion rates are decreased by the cover crop, reducing the potential for nutrient transport to surface water bodies.

22. Maintain good soil structure to reduce runoff from areas that receive manure.

Maintaining good soil structure will reduce the amount of runoff by increasing infiltration. This will reduce the potential for off-site transport of manure-related contaminants.

23. Maintain filter strips next to surface waters receiving runoff from crop fields where manure is applied.

A filter strip of perennial vegetation maintained between agricultural lands and adjoining streams and lakes will filter out some of the nutrients and contaminants before they reach the water. Minimum width of these strips can be determined by the width of any agricultural equipment used to harvest or otherwise manage the vegetation. The minimum width should be 10 feet for average slopes of less than 1 percent and proportionally up to at least 20 feet for slopes of 15 percent. Tillage should not be performed in this strip except for establishment or maintenance purposes.

24. Control spillage of manure when transporting from the storage area to the field.

Manure along roadways presents a nuisance and safety problem especially near urban areas. Runoff from roadways can carry the spilled material into streams causing water quality problems. Use hauling equipment consistent with the type of manure generated. Limit passage of hauling equipment through the manure as much as possible to reduce tracking on roads. Effort should be made to clean up excess amounts of manure deposited on public roads.

25. Manage milk house and parlor wash water to avoid migration of nutrients to brooks, streams and lakes.

Wash water carrying nutrients and manure can be disposed of using land application, filter strips, constructed wetlands, organic matter beds, lagoons, subsurface disposal, storage structures, or by mixing with manure for land application.

26. Manage manure to control excessive fly populations.

Manure storages are often blamed for fly problems. However, manure that is stored and has a dry, crusted layer isn't a primary fly-breeding area. Manure can also be contained within the housing system with slatted floors or a bedded pack. These are not primary fly-breeding areas as long as the top layers are undisturbed. The key is to avoid wet, rutted areas around storage facilities where flies will breed. Impermeable containment walls, proper drainage, or catch basins may be needed to avoid pockets of water stagnation. Chemical pesticide control may be necessary.

27. Control odors as necessary.

Movement and distribution of manure will create odors even under the best practices. Every effort should be made to minimize odor problems from daily operations by: (a) keeping neighbors informed of activities, (b) condensing spreading time in each field to minimize periods when odors can be most offensive, (3) incorporating manure immediately on tilled fields, and (d) utilizing vegetative barriers that can buffer odor drift.

APPENDIX A – MANURE IRRIGATION BMP'S

New Hampshire Department of Agriculture, Markets, and Food, Concord, NH
January 29, 1999

The following Best Management Practices (BMP's) for Liquid Manure storage, transportation and application are to be used in addition to and in conjunction with those BMP's published in this manual. They were added to this document by the New Hampshire Department of Agriculture, Markets & Food in January of 1999.

Liquid manure systems provide advantages and disadvantages to the agricultural operator. Due to the high water content of the material, the volume of material that must be stored, transported and land applied is far greater than is the case with solid or semi-solid manure management systems. In order to efficiently utilize the material with the least possible adverse effect on the environment and to minimize nuisance-type problems, operators should be sure that storages, conveyances and application equipment are properly constructed, maintained and calibrated.

Best Management Practices

1. Have samples of liquid manure analyzed at least annually. At a minimum the following constituents should be determined:

- **% Total Solids**
- **Total Nitrogen**
- **NH_3N Nitrogen**
- **Phosphorous (P_2O_5)**
- **Potassium (K_20)**

It is preferable that samples be analyzed shortly before land application is to begin. N losses in open storages can be significant. The percent solids of liquid manure typically will be less than 4% and should not exceed 8%.

2. Maintain tanks used for transporting liquid manure from storage areas to application sites to prevent leakage onto public roadways.

3. Pits or lagoons used for short-term storage during the course of a field application activity should be lined with clay or a suitable impervious material. Always allow freeboard in the pit to accommodate rainfall so as to avoid overflows.

4. Check pumps, pipes, hoses and nozzles at least daily for signs of leakage. Repair damage promptly to prevent over application or ponding in spots. If

underground pipelines are used, they should be carefully assembled and tested for leaks.

Because of the corrosivity of liquid manure, underground delivery systems should be constructed of plastic or non-corrosive materials. Flushing lines with water will help prevent blockages from occurring and extend the life of the equipment.

5. Avoid irrigation with liquid manure when the soil is saturated or when excessive rainfall causes ponding or runoff. When the water table is within 6" of the surface, irrigation should be delayed.

Irrigation with manure/milkroom waste provides both plant nutrients for growing crops and necessary water. Under normal circumstances, application rates will be based upon the nitrogen needs of the crop. However, there may be occasions when an excess of applied water may become the limiting factor in determining the maximum application rate.

6. Inspect fields for broken tiles and other possible short-circuit routes that could result in a direct discharge of manure to drainage tile and surface-drainage ditches.

Avoid or limit liquid manure applications in areas where conditions would cause a discharge to occur.

7. Determine hourly application rates and match the applied volume of material to the infiltration rate and permeability of the soil.

Lower application rates and multiple passes with irrigation equipment may be required to prevent runoff and ponding.

8. Limit an application event to an amount that will bring the soil to field moisture capacity.

Field moisture capacity is the amount of water a given soil will hold following saturation and after the force of gravity has drained all the water it can.

9. Limit the annual application rate so as not to exceed the crop's annual nutrient requirements.

Take into account N losses to the atmosphere during application. If necessary, consult with Cooperative Extension or qualified crop consultants for the nutrient requirements of particular crops.

10. Monitor wind conditions throughout the day to assure that over spray or drift onto surrounding properties, public roadways, surface water bodies or environmentally sensitive areas does not occur.

Avoiding irrigation during high temperature and/or high winds will minimize N losses as well as minimizing potential odor problems. When irrigating with livestock manure, the operator should be aware of odor nuisances that may affect neighbors. Spray irrigation produces aerosol sprays that can be detected for long distances. Wind direction and impact on neighbors need to be observed closely.

AGRICULTURAL COMPOST BEST MANAGEMENT PRACTICES

This group of Best Management Practices (BMPs) provides guidance for implementing agricultural composting. Composting is the aerobic biological decomposition of organic matter including manure, leaves, bedding and crop residue. It is a natural process that is enhanced and accelerated by the mixing of organic waste for optimal microbial growth to produce a relatively stable soil amendment.

These BMPs are intended to permit the maximum use of nutrients and soil conditioning while achieving the least possible impact upon the environment and human, animal, and plant health. These BMPs give guidance in minimizing runoff and leaching into the surface and ground waters and risk to water quality from nutrient enrichment.

Planning Considerations

Most of the nutrients in agricultural compost are in a stable organic form, which are slowly released to growing plants. Only 8-12 percent total nitrogen (N) is available the first year following its application. Nutrients from chemical fertilizer are nearly 100 percent available to growing plants.

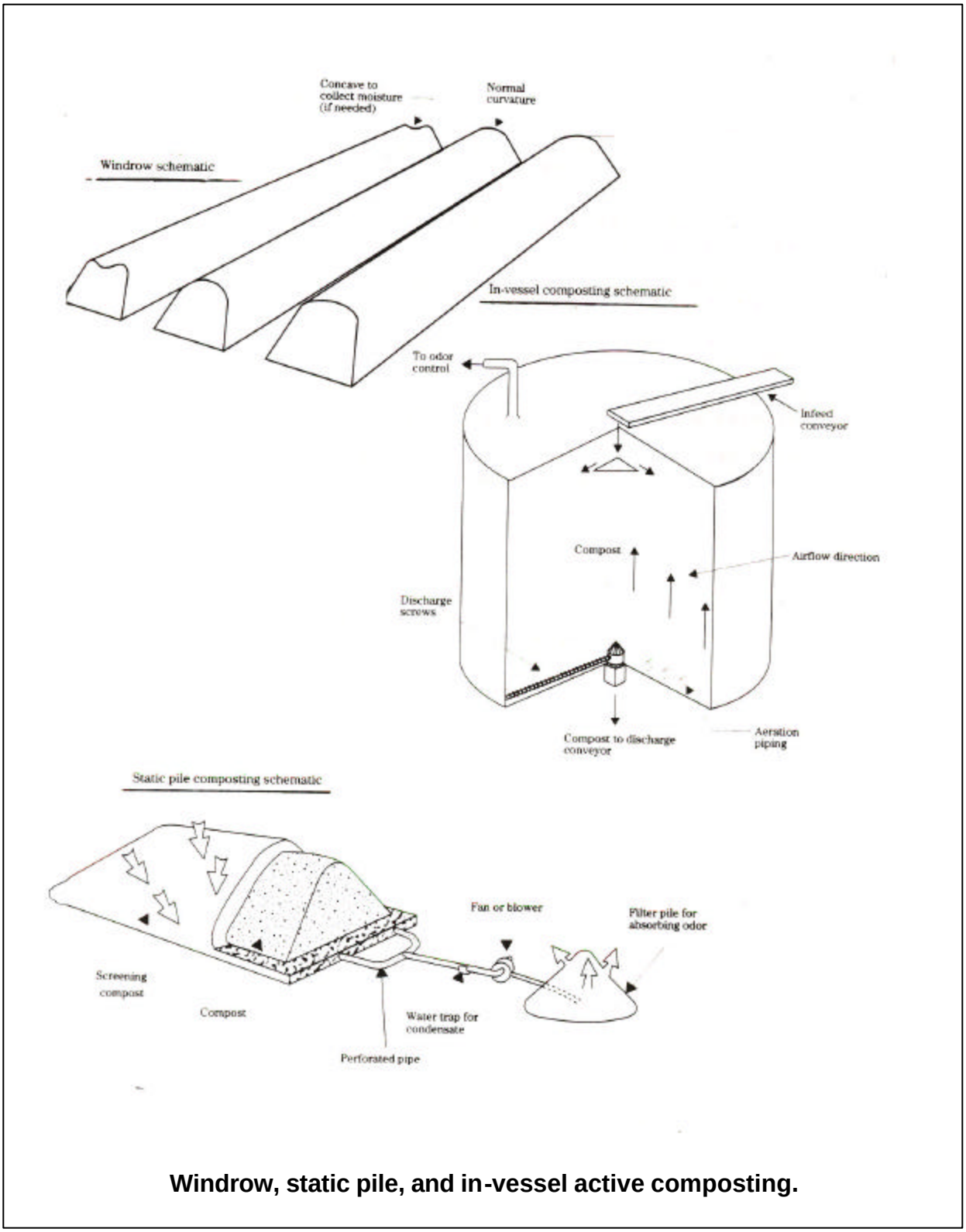
Benefits of agricultural composting include:

- A lowered risk of pollution by stabilizing nitrogen in an organic form, and reducing its loss to ground and surface water.
- Improved handling.
- A saleable product that is a good soil conditioner.
- A lower risk of nuisance complaints.
- Destruction of weed seed.

Disadvantages of agricultural composting include:

- Labor and equipment costs
- Weather delays and odor
- Marketing considerations
- Diversion of manure and crop residue from cropland
- Slow release of nutrients
- Risk of losing farm classification if composting extends beyond using normal farming materials

Several or all of the following BMPs may be necessary to achieve the desired results. Local conditions may dictate other BMPs be used as available.



Windrow, static pile, and in-vessel active composting.

Best Management Practices

1. Determine the method of active composting that best fits the operation based on realistic labor, equipment cost, and availability.

The three methods of active composting include: windrow, static pile, and in-vessel. The windrow method is the strategy most commonly used to produce agricultural compost.

2. Evaluate facility and application sites for environmental constraints.

Constraints include soil and surface drainage, depth of bedrock, setbacks and prevailing winds.

3. Analyze compost constituents for developing the best recipe for the mix and monitor the nutrient content.

Contact the Compost Technology Center (CTC) at the University of New Hampshire for information on sampling and analysis at (603) 862-3212.

4. Determine manner of compost utilization.

If cropland is available, employ Manure BMPs that pertain to crops, soil, and application techniques. If compost must be removed from the farm, develop marketing or give-away program.

5. Plan timing of compost application to avoid periods when soil is frozen.

6. Determine realistic yield goals.

Consider soil potential, climate, and management.

7. Base nutrient application rates on realistic yield goals.

8. Consider nutrient contributions from legumes, other organic sources, and chemical fertilizers in determining application rates.

9. Calibrate compost spreading equipment to guard against over-application.

10. Store compost in properly constructed facilities during periods when land application is not suitable.

Field stacking is acceptable on flat spots away from surface water.

11. Avoid spillage during handling and transportation to minimize nuisance and safety problems.

12. Establish a practice of routine soil testing and record keeping for residual nutrients.

Consider nutrient credits from other sources, and make effective use of pre-sidedress nitrate-N test (PSNT), which is unique to corn crops.

13. Control vectors, including flies, and odors to prevent public health problems and nuisance.

CHEMICAL FERTILIZER BEST MANAGEMENT PRACTICES

This group of Best Management Practices (BMPs) provides guidance for managing chemical fertilizer use to minimize nutrient runoff and leaching into surface and ground waters. These practices provide guidance for the proper use of chemical fertilizers for commercial agriculture, and other commercial applications, parks, cemeteries and recreation and other areas. They also provide guidance to commercial applicators and others for home lawns and gardens.

These BMPs are intended to permit the maximum use of nutrients and soil conditioning while achieving the least possible impact upon the environment or human, animal and plant health. They will reduce the potential for ground and surface water nutrient contamination, increase the efficiency of fertilizer use, and educate users about the proper use of chemical fertilizers.

Planning Considerations

Proper planning is required when choosing BMPs for chemical fertilizer use for a particular farm, field or site. Several or all of the following BMPs may be necessary to achieve the desired results. Local conditions may dictate that other BMPs be used as appropriate.

Best Management Practices

1. Determine the surface and ground water contamination potential of each site.

Consider soil type, slope, depth to bedrock or impervious layer, and location and depth or distance to aquifers and bodies of water.

2. Assess actual plant (crop) needs.

Realistic yield goals have been established for selected plants for each soil map unit in each county. Data are available from the Natural Resources Conservation Service at each county field office.

3. Utilize soil tests to determine current nutrient levels and soil pH.

The standard soil test will measure soil levels of phosphorus, potassium, calcium and magnesium as well as soil pH. Nitrogen, which the standard soil test does not measure, and phosphorus are the two nutrients of greatest concern as potential water pollutants. Use soil pH testing and adjust soil pH to appropriate

levels which can reduce nutrient loss significantly, while increasing plant growth and yields. Soil tests should be coupled with crop nutrient need (based on realistic plant yield goals) when determining fertilizer application rates.

Soil nitrate testing (PSNT) is now available for use in determining supplemental nitrogen needs for corn. A typical fertilizer program for silage corn would include the pre-plant incorporation of 15-20 tons of dairy manure per acre, the use of a starter fertilizer at planting, and the application of supplemental nitrogen at the 8 to 16 inch stage of plant growth based on need as determined by soil nitrate testing.

4. Assess all available nutrients including manure and other organic sources and legume contributions.

5. Apply nutrients only at levels required for plant growth.

Follow fertilizer recommendations such as made by UNH Cooperative Extension are designed to provide maximum economic return with the least impact on the environment. The UNH Cooperative Extension provides detailed fertility management guidelines and fertilizer recommendations for all crop and plant systems. These recommendations are based on crop need, soil type and condition, and soil or plant tissue analysis, or both, and include fertilizer type, rates and timing.

6. Use realistic plant growth expectations and appropriate timing for application of chemical fertilizer.

Nutrient applications should be timed to coincide with periods of maximum plant or crop need. The application of several smaller amounts of fertilizer timed to coincide with plant need will generally require less total fertilizer than loading the soil with an early season or pre-plant single application, thereby reducing the potential for nutrient loss to surface and ground waters.

Following is an example of current UNH Cooperative Extension recommendations. With strawberries, a small initial nitrogen application is made at planting, with additional small nitrogen applications at runner initiation and runner rooting. This regimen can reduce the total nitrogen applied by almost 50 percent when compared to a single, pre-plant application.

7. Use split fertilizer applications where possible. Using smaller applications on a more frequent basis will decrease potential for nutrient loss to ground or surface waters.

Home lawns, depending on the quality of turf desired, may receive between one and three applications of fertilizer annually with three applications being the maximum for most situations. A good guideline for a three application schedule includes use of a starter type fertilizer in May (1-2-1 ratio), a slow release high nitrogen fertilizer (having a 4-1-2 ratio) in July, and balanced fertilizer (1-1-1 ratio)

in September. If a single application is to be applied, the September application is best.

8. Develop plant management systems that maintain soil organic matter levels at a minimum of three percent to five percent to improve soil nutrient retention.

9. Apply nutrients uniformly.

10. Use less leachable forms of fertilizer (slow release) where possible.

11. Use mulches, both organic and synthetic, to significantly reduce the risk of leaching nutrients from the soil, and to reduce the total amount of chemical fertilizer applied to achieve optimum growth and yields.

For example, plastic mulches are often used in vegetable crops such as vine crops, tomatoes and peppers. Fertilizer is applied pre-plant under the mulch which prevents leaching of nutrients from the root zone, increasing efficiency of use and reducing risk of off-target movement.

12. Avoid applying nutrients to very shallow soils or exposed bedrock.

13. Calibrate chemical fertilizer application equipment properly to insure accurate application.

14. Keep accurate fertilizer and manure application records and crop yield/plant growth records to aid in crop/nutrient management.

15. Schedule irrigation to minimize leaching potential (avoid excessive irrigation).

16. Diversify crop rotations to include crops that can utilize residual, leachable soil nutrients.

17. Manage fertigation systems so that nutrients are incorported into irrigation water only when crops require supplemental fertilizer applications.

Fertigation should not be used to replace an integrated fertility management program-which includes programming the use of starter fertilizer, manure and other organic sources, and split fertilizer applications, all based on soil and/or tissue analysis and plant need.

18. Use plant tissue testing to determine potential or existing macro and micro nutrient problems.

Use recommendations such as provided by UNH Cooperative Extension. Plant tissue testing is an excellent tool for determining exact plant nutrient needs for many essential plant nutrients, including nitrogen, phosphorus, potassium,

calcium, magnesium, iron, zinc, manganese, copper, boron, molybdenum, chlorine, sulphur, and others. It is routinely used for fruit crops.

19. Limit applications of nitrogen fertilizers to coincide with plant uptake.

Nitrogen fertilizer applications should be timed to coincide with plant uptake. Spring applications should be when annual crops are planted or when biennial or perennial plant growth begins. Fall applications should not be made after plant growth has ceased or when the additional fertilizer will no longer have an impact on yield.

20. Do not apply nutrients during winter months when ground is frozen or snow-covered because of the high risk of runoff.

21. Minimize soil erosion.

Nutrients, in particular phosphorus, are often attached to soil particles and can be transported with the soil particles as they are washed away by the erosion process.

22. Employ pest control practices such as recommended by UNH Cooperative Extension to insure that plant growth is not depressed.

23 Plant cover crops after harvest of annual crops to minimize soil erosion and provide soil organic matter.

Cover crops also tie up nutrients that may otherwise be leached from the soil or runoff, making them available to future crops.

24. Install filter strips next to surface waters receiving runoff from areas to which fertilizers have been applied.

A filter strip of perennial vegetation maintained between agricultural lands and adjoining streams and lakes will filter out some of the nutrients and contaminants before they reach the water. Minimum width of these strips can be determined by the width of any agricultural equipment used to harvest or otherwise manage the vegetation. The minimum width should be 10 feet for average slopes of less than one percent and proportionally up to at least 20 feet for slopes of 15 percent. Tillage should not be performed in this strip except for establishment or maintenance purposes. Artificial wetlands and/or basins can serve as efficient nutrient traps.

25. Use leguminous rotation crops to reduce the need for chemical fertilizers.

26. Store fluid fertilizers in labeled containers and/or structures that prevent the discharge of fluid fertilizers and are resistant to corrosion, puncture, or cracking.

27. Store and handle dry fertilizers in a manner to prevent pollution by minimizing losses to the air, surface water, ground water, or subsoil.

Fertilizer Labeling

A sample label for 12-2-8 fertilizer might show:

JONES FERTILIZER COMPANY

Total Nitrogen (N)	12%
W.I.N.	6%
Phosphorus (P_20_5)	2%
Potassium (K_20)	8%

Net Weight 50 lbs.

New Hampshire has a law governing the manufacture and sale of fertilizers. The manufacturer must place a statement guaranteeing the weight and analysis of the fertilizer on, or attached to, the bag or container. If the fertilizer is delivered in bulk, a written statement containing the same information must be supplied to the purchaser at the time of delivery.

The statement of analysis must contain the following information expressed as percent by weight:

1. The total mount of nitrogen (N) in the fertilizer.
2. The amount of water insoluble nitrogen present, if claimed.
3. The amount of phosphorus (P) present, expressed as P_2O_5.
4 The amount of potassium (K) present expressed as K_2O.

Note that in the above example the total amount of nitrogen (N) is 12% of the net weight or six pounds. Half (6%), or three pounds of the total (12%) nitrogen present is in a water insoluble form. This means that half the nitrogen in the fertilizer is a slow release type.

If assistance is needed for understanding labels for applying fertilizer, consult your county agricultural educator of the UNH Cooperative Extension or the Extension turf specialist at the University of New Hampshire.

COMPLAINT RESOLUTION PROCESS

Even with good farm management, weather, schedules, and ground conditions may at times cause environmental and social problems from agricultural operations. In other cases, farm management and improper planning and implementation of practices may present longer term problems that need to be resolved. This section discusses the resolution of agricultural, environmental, and social problems.

In order to resolve environmental and social problems as quickly and efficiently as possible, and on a volunteer basis, RSA 431:33-35 provides a straight forward procedure to facilitate resolution. The RSA provides for a formal plan for handling complaints and actions to take if corrections are not made within 10 days after notification. If the person responsible fails to implement the recommended changes, the Commissioner of Agriculture shall notify the Health Officer of the municipality and the Commissioner of Environmental Services for compliance action.

Complaints concerning manure, agricultural compost, chemical fertilizer handling, and other practices may be made by the public, adjacent landowners, municipalities, state agencies and others. The complaints may be made to towns, agencies, NHDES, etc., and are forwarded to the Commissioner of the NH Department of Agriculture for resolution.

The Commissioner is empowered to investigate complaints of improper handling. This includes, but is not limited to, improper storage and spreading of manure, agricultural compost and chemical fertilizer. Water quality, air pollution, odor and nuisance may also be subjects of complaint.

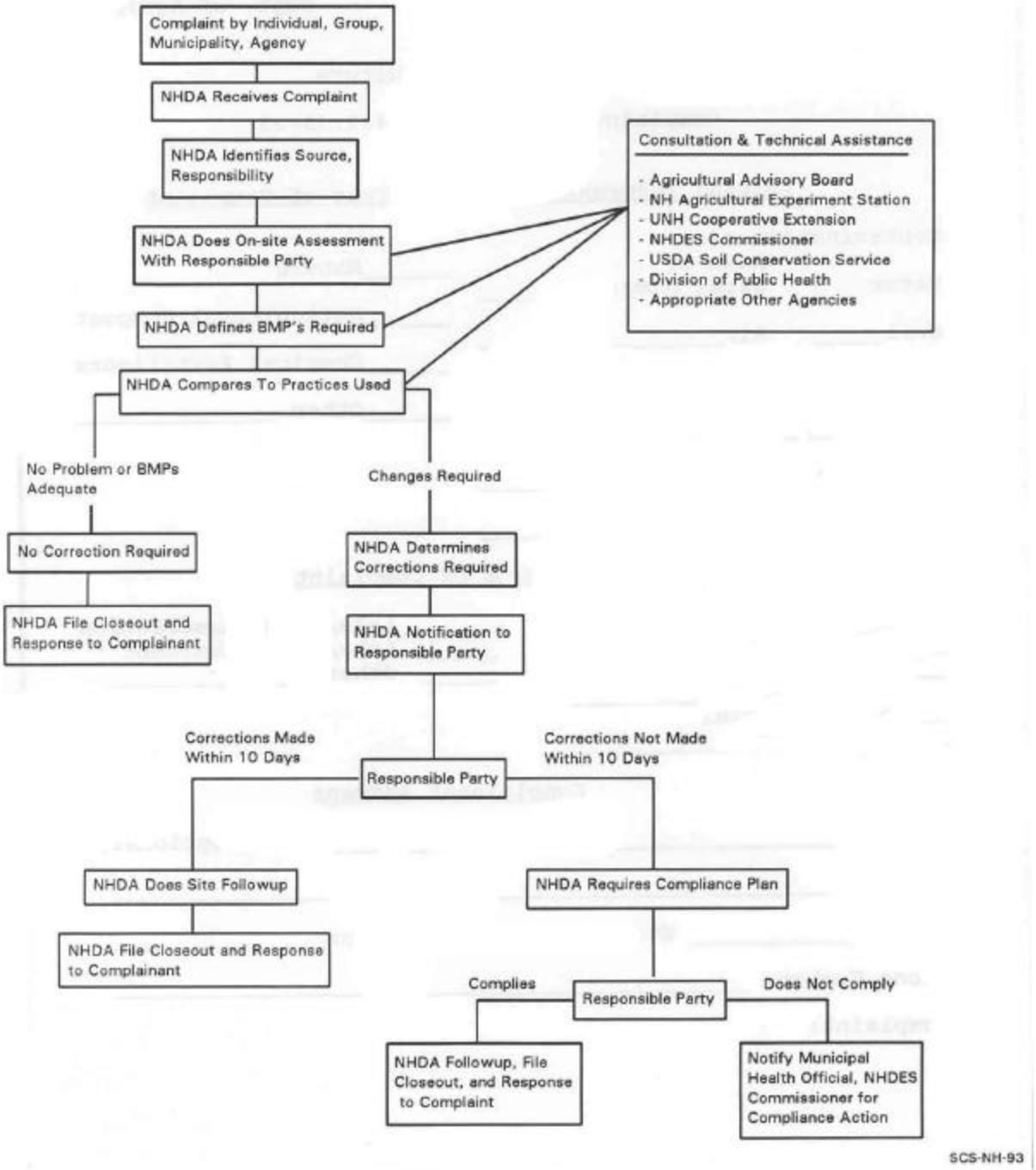
If the Commissioner is able to identify the source of the improper handling and has reason to believe such handling is a nuisance caused by failure to use BMPs**,** the Commissioner shall:

- Determine who is responsible for such handling.
- Determine the changes needed in handling to comply with best management practices.
- Notify, in writing, the person responsible for the problems and changes necessary to conform to best management practices.
- Require a plan for compliance if the corrections, under RSA 431.35, I(c) have not been made within 10 days after notification.

If the person responsible fails to implement the recommended changes, the Commissioner shall notify the Health Officer of the municipality and the Commissioner of the Department of Environmental Services who shall take such action as their authority permits.

The complaint resolution process is shown in chart form on the next page. A copy of the NH Department of Agriculture complaint form starts on Page 33. RSA 431:33-35 is included on Page 35.

NEW HAMPSHIRE DEPARTMENT OF AGRICULTURE (NHDA) COMPLAINT RESOLUTION PROCESS



#_____
(assigned by NHDAM&F)

NH Department of Agriculture, Markets & Food

COMPLAINT FORM

RSA 431:33-35 Manure, Agricultural Compost, and Chemical Fertilizer Handling

Initial Information
Contamination of:

☐ Water; Name of waterbody_____

☐ Soil ☐ Air

Town:_____

Date:____/____/____

Taken by:_____ Dept._____

Type of Complaint

☐ Manure

☐ Agricultural Compost

☐ Chemical Fertilizer

☐ Other _____

Source of Complaint

☐ Neighbor
☐ Visitor
☐ State Agency _____

☐ Lake/River Association
☐ Lake/River Resident

☐ Town Official _____

☐ Other _____

Complainant

Name: _____

Address: _____
(Street) (City) (State) (Zip)

Phone:_____ Fax: _____

Complaint: (State name and address of land/animal owner if known, details of complaint)

Directions to Site: (Include or attach map showing site if possible)

(Section below to be filled out by Department of Agriculture, Markets & Food)

Site Report

On Site Inspection Date _____/_____/_____

Inspection by _____

Action Taken

☐ No action taken

☐ BMP implemented

☐ BMP recommended

☐ Referred to Department of Environmental Services or Divison of Public Health Services for enforcement.

☐ Other _____

Attach copies of all correspondence

Forward complaint sheet to: Richard Uncles, NH Department of Agriculture, Markets & Food, 25 Capitol St., PO Box 2042, Concord, NH 03302-2042
Phone: 271-3685, 271-2753 Fax: 271-1109

RSA 431:33-35

Manure, agricultural compost, and chemical fertilizer handling.

AGRICULTURE

431:33 Definitions. Is this subdivision:

I. "Agricultural compost" means mixtures of decomposing vegetable matter, including manure, stored and managed on farms and used to condition and fertilize soils used for production of agricultural crops.

II. "Chemical fertilizer" means substances as defined in RSA 431:3, I-V.

III. "Manure" means the excreta of animals, including poultry, that are kept or harbored as domesticated animals, together with bedding materials used in housing such animals.

431:34 Best Management Practices. In consultation with the Agricultural Advisory Board, the Commissioner of Environmental Services, the United States Natural Resources Conservation Service, the New Hampshire Agricultural Experiment Station, the University of New Hampshire Cooperative Extension Service, and other appropriate agencies, the Commissioner of Agriculture shall identify and publish the Best Management Practices for handling manure, agricultural compost, and chemical fertilizer. Such practices shall be based upon the best available research and scientific data so as to permit the maximum use of nutrient and soil conditioning values, while achieving the least possible adverse impact upon the environment or human, animal and plant health.

431:35 Improper Manure Handling.

I. The Commissioner shall investigate complaints of improper handling of manure, agricultural compost, and chemical fertilizer, including, but not limited to, complaints of improper storage and spreading. If the Commissioner is able to identify the source of improper handling and has reason to believe such handling is a nuisance caused by failure to use Best Management Practices, the Commissioner shall:

(a) Determine who is responsible for such handling.

(b) Determine the changes needed in handling to comply with Best Management Practices.

(c) Notify, in writing the person responsible of the findings and changes necessary to conform to Best Management Practices.

(d) Require a plan for compliance if the corrections, under RSA 431:35, I(c), have not been made within 10 days after notification.

II. If the person responsible fails to implement the recommended changes, the Commissioner shall notify the Health Officer of the municipality and the Commissioner of Environmental Services, who shall take such action as their authority permits.

NUISANCE LIABILITY OF AGRICULTURAL OPERATIONS

432:32 Agricultural Operation. "Agricultural Operation" when used in this subdivision includes any farm, agricultural, or farming activity as defined in RSA 21:34-a.

432:33 Immunity from Suit. No agricultural operation shall be found a public or private nuisance as a result of changed conditions in or around the locality of the agricultural operation, if such agricultural operation has been in operation for one year or more and if it was not a nuisance at the time it began operation. This section shall not apply when any aspect of the agricultural operation is determined to be injurious to public health or safety under RSA 147:1 or RSA 147:2.

432:34 Negligent or Improper Operations. The provisions of this subdivision shall not apply if a nuisance results from the negligent or improper operation of an agricultural operation. Agricultural operations shall not be found to be negligent or improper when they conform to federal, state, and local laws, rules, and regulations.

432:35 Limits. Nothing contained in this subdivision shall be construed to modify or limit the duties and authority conferred upon the Department of Environmental Services under RSA 485 or RSA 485-A or the Commissioner of Agriculture, Markets, and Food under any of the chapters in this title.

REFERENCES

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Maine, State of 1991. Strategy For Managing Nonpoint Source Pollution From Agricultural Sources and Best Management Systems Guidelines.

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New Hampshire RSA 431:33-35. Manure, Agricultural Compost and Chemical Fertilizer Handling. Concord, New Hampshire.

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Northeast Dairy Practices Council. Guidelines for Handling Liquid Effluent from Milking Centers, NDPC15.

Northeast Regional Agricultural Engineering Service. On-Farm Composting Handbook, NRAES-54. Cooperative Extension.

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University of New Hampshire Cooperative Extension. Instructions On How To Take A Soil Sample. University of New Hampshire, Durham, New Hampshire.

USDA-Natural Resources Conservation Service. Soil Survey (for each county in New Hampshire). Many are on-line at www.nh.nrcs.usda.gov, click on NH Soil Information.

USDA-Natural Resources Conservation Service, 1992. Agricultural Waste Management Field Handbook, National Engineering Handbook Series, Part 651.

USDA-Natural Resources Conservation Service. New Hampshire Technical Guide Handbook. Majority is on-line at www.nh.nrcs.usda.gov, click on Technical Resources.

USDA-Natural Resources Conservation Service. Engineering Field Handbook (Manual) For Conservation Practices, National Engineering Handbook Series, Part 650.

Welsch, P. J. Riparian Forest Buffers. USDA Forest Service.

SOME AGENGIES PROVIDING TECHNICAL ASSISTANCE

Technical assistance for agricultural Best Management Practices is available from the following agencies as resources permit:

New Hampshire Department of Agriculture, Markets, and Foods

Office of Commissioner
25 Capitol Street, PO Box 2042, Concord, New Hampshire 03302-2042
(603) 271-3551

Divisions and Bureaus – Refer to inside front cover.

University of New Hampshire Cooperative Extension

Office of the Director
Taylor Hall, 59 College Road, University of New Hampshire,
Durham, New Hampshire 03824-3587
(603) 862-1520

County Offices – Refer to inside front cover.

USDA-Natural Resources Conservation Service

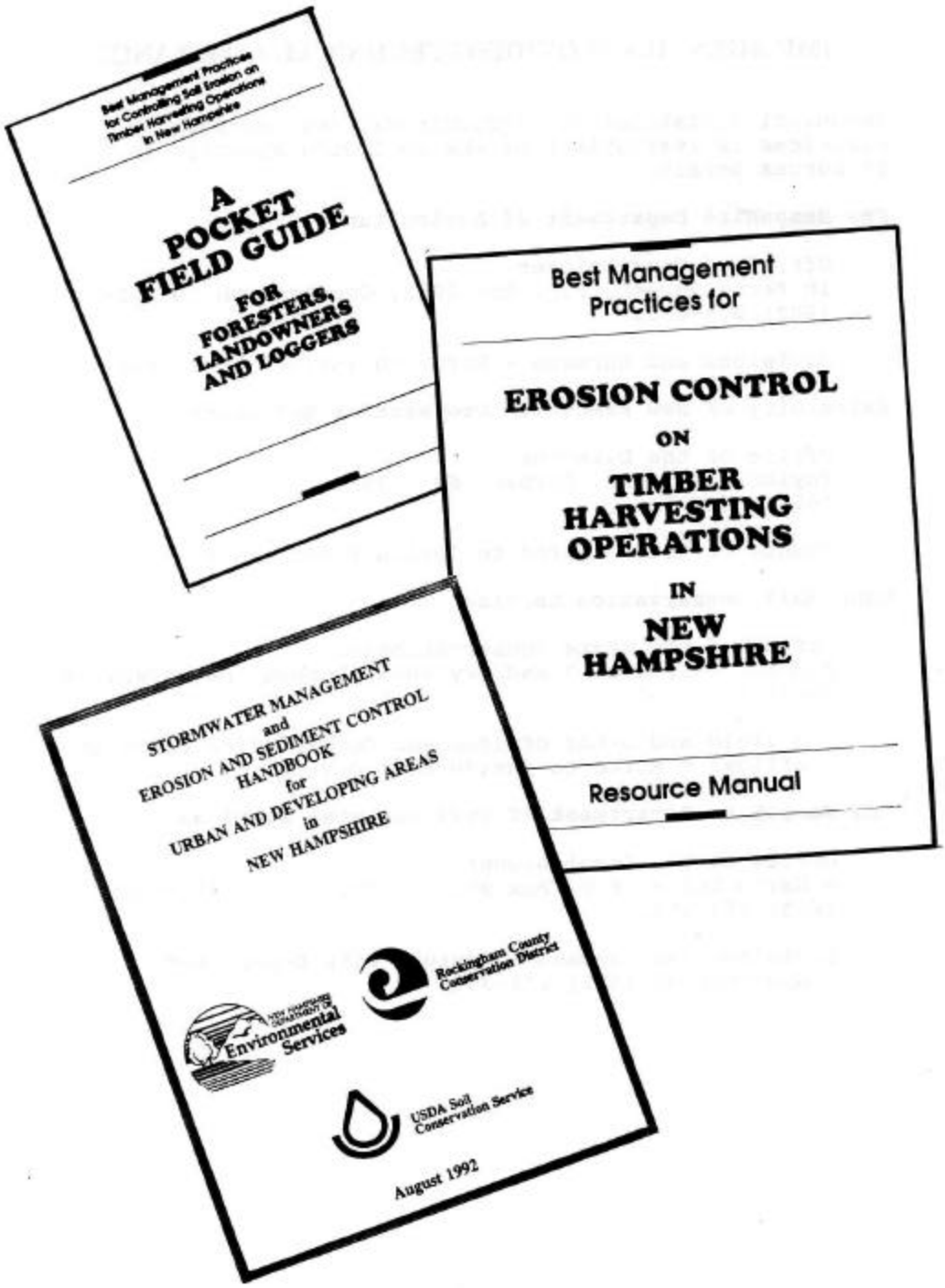
State Office
Federal Building, 2 Madbury Road, Durham, New Hampshire 03824-2043
(603) 868-7581

NRCS Field offices, Conservation District offices, and Resource Conservation and Development Area Council offices – refer to inside back cover.

New Hampshire Department of Environmental Services

Office of the Commissioner
6 Hazen Drive, PO Box 95, Concord, New Hampshire 03302-0095
(603) 271-3503

Divisions and Bureaus – Consult with Department Operator at (603) 271-3503.


Best Management Practices for Controlling Soil Erosion on Timber Harvesting Operations in New Hampshire
A POCKET FIELD GUIDE
FOR FORESTERS, LANDOWNERS AND LOGGERS
Best Management Practices for
EROSION CONTROL
ON
TIMBER HARVESTING OPERATIONS
IN
NEW HAMPSHIRE
Resource Manual
STORMWATER MANAGEMENT and EROSION AND SEDIMENT CONTROL HANDBOOK for URBAN AND DEVELOPING AREAS in NEW HAMPSHIRE
Environmental Services
Rockingham County Conservation District
USDA Soil Conservation Service
August 1992

BMP REFERENCES AVAILABLE FOR OTHER NEW HAMPSHIRE LANDUSES

August 1998

Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in New Hampshire. Rockingham County Conservation District, New Hampshire Department of Environmental Services, and Natural Resources Conservation Service. August 1992.

Best Management Practices for Erosion Control on Timber Harvesting Operations in New Hampshire – Resource Manual. J. B. Cullen, New Hampshire Department of Resources and Economic Development. (undated)

Best Management Practices for Controlling Soil Erosion on Timber Harvesting Operations in New Hampshire – A Pocket Field Guide for Foresters, Landowners, and Loggers. New Hampshire Timberland Owners Association. (undated)

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Keeping Barnyard Runoff in Its Place. NH Department of Environmental Services Greenworks. April 1997.

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Planting Shoreland Areas. Ralph M. Winslow Jr., UNH Cooperative Extension. April 1995.

Composting Yard Waste. NH Department of Environmental Services. Fact Sheet WMD-SW-3, 1996.

Fertilization of Homelawns. John M. Roberts, UNH Cooperative Extension. 1996.

Best Management Practices to Control Nonpoint Source Pollution: A Guide for Citizens and Town Officials. NH Department of Environmental Services, NHDES-WD-97-8. Revised November 1997.

NRCS
State Office
Federal Building, 2 Madbury Road
Durham, NH 03824-2043
(603) 868-7581
Richard Babcock, State Conservationist

BELKNAP COUNTY
Belknap County Conservation District
719 Main Street, Room 203
Laconia, NH 03246-2772
(603) 527-5880

CARROLL COUNTY
NRCS and Carroll County Conservation District
73 Main Street (P.O. Box 533)
Conway, NH 03818-0533
(603) 447-2771

CHESHIRE COUNTY
NRCS and Cheshire County Conservation District
11 Industrial Park Drive
Walpole, NH 03608-9744
(603) 756-2988

COOS COUNTY
NRCS and Coos County Conservation District
4 Mayberry Lane
Lancaster, NH 03584-3616
(603) 788-4651

GRAFTON COUNTY
NRCS and Grafton County Conservation District
250 Swiftwater Road, Room 6
Woodsville, NH 03785-1424
(603) 747-2001

HILLSBOROUGH COUNTY
NRCS and Hillsborough County Conservation District
Chappell Professional Center
#468, Route 13, South
Milford, NH 03055-3476
(603) 673-2409

MERRIMACK COUNTY
NRCS and Merrimack County Conservation District
The Concord Center
10 Ferry Street, Box 312
Concord, NH 03301-5081
(603) 223-6023

ROCKINGHAM COUNTY
Rockingham County Conservation District
110 North Road
Brentwood, NH 03833-6614
(603) 679-2790

STRAFFORD COUNTY
Strafford County Conservation District
259 County Farm Road, Unit #3
Dover, NH 03820-6015
(603) 749-3037

NRCS (CARROLL, ROCKINGHAM, AND STRAFFORD COUNTIES)
Telly's Plaza
243 Calef Highway
Epping, NH 03042-2326
(603) 679-1587

SULLIVAN COUNTY
Sullivan County Conservation District
24 Main Street
Newport, NH 03773-1515
(603) 863-4297

NH RESOURCE CONSERVATION AND DEVELOPMENT (RC&D) AREA COUNCILS

North Country RC&D Area Council
719 Main Street, Room 220
Laconia, NH 03246-2772
(603) 527-2093

Southern New Hampshire RC&D Area Council
The Concord Center
10 Ferry Street, Box 4, Room 422
Concord, NH 03301-5019
(603) 223-0083